

# WIDEBAND ANALOG QUADRATURE MODULATOR/DEMODULATOR WITH PRE-COMPENSATION/POST-COMPENSATION CORRECTION

## Abstract of the Disclosure

5 The present invention is related to methods and apparatus that compensate for quadrature impairments of an analog quadrature modulator and/or demodulator over a relatively wide signal bandwidth. One embodiment pre-distorts baseband signals in a quadrature modulator compensation signal processor (QMCSP) to negate the quadrature impairment of an analog quadrature modulator and corrects a received baseband signal in a quadrature demodulator compensation signal processor (QDCSP) to cancel the  
10 quadrature impairment of an analog quadrature demodulator. The QMCSP and the QDCSP contain adaptive digital filter correction structures that pre-compensate and post-compensate, respectively, for the quadrature impairments introduced by the analog quadrature modulator and the analog quadrature demodulator over a relatively wide bandwidth. A phase shifter advantageously shifts the phase of a local oscillator signal  
15 to the analog quadrature demodulator to distinguish quadrature impairments introduced by the modulation path from quadrature impairments introduced by the demodulation path.

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